

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action dated February 3, 2009 has been received and its contents carefully reviewed.

Claims 1, 2, 8, and 14 are hereby amended. Claims 3, 6, 9, and 12 are canceled without prejudice or disclaimer. Accordingly, claims 1, 2, 4, 5, 7, 8, 10, 11, 13, and 14 are currently pending. Reexamination and reconsideration of the pending claims are respectfully requested.

The Office Action rejects claims 8-14 under 35 U.S.C. §112, Second Paragraph, as being indefinite. Applicants have amended claim 8 to more clearly define claimed subject matter. Applicants, therefore, respectfully request withdrawal of the rejection.

The Office Action objects to claims 3 and 9 as being of improper dependent form. To advance prosecution, Applicants have canceled claims 3 and 9. Applicants, therefore, respectfully request withdrawal of the objection.

The Office Action rejects claims 1-14 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 3,833,499 to Egan et al. (*Egan*). Claims 3, 6, 9, and 12 are canceled, so the rejection of these claims is moot. Applicants, respectfully traverse the rejection of claims 1, 2, 4, 5, 7, 8, 10, 11, 13, and 14.

To establish *prima facie* obviousness of a claimed invention, all the elements of the claim must be taught or suggested by the prior art. *Egan* fails to teach or suggest all the elements of claims 1, 2, 4, 5, 7, 8, 10, 11, 13, and 14, and thus cannot render these claims obvious.

Claim 1 recites, “zeolite has a structure of MFI, MEL, TPN, MTT or FER.” *Egan* fails to teach or suggest at least this element of claim 1. *Egan* only discloses that the zeolite is a rare earth exchange zeolite, and is silent with respect to the shape of zeolite. See, *Egan*, column 6, lines 55-56, and claim 13. The Office Action also states “[w]ith respect to limitations

regarding the shape of the catalyst, it is considered that such is a matter of design choice to the engineer practicing in this field as such is dependent upon process and reactor considerations.” *Office Action*, page 5. Applicants respectfully disagree. Zeolite is a major component of the hydrocarbon cracking catalyst of claim 1. The properties of zeolite (e.g., structure, shape, etc.) play an important role in the properties of the hydrocarbon cracking catalyst. Different types of zeolite, combined with other component, can create different catalyst. The properties of zeolite are not just simply “a matter of design choice to the engineer practicing in this field.” The discovery of a new hydrocarbon cracking catalyst requires extensive research work on the properties of the components, including those of zeolite. In fact, after conducting many experiments on zeolite and metal oxide, Applicants unexpectedly discovered the hydrocarbon cracking catalyst disclosed in the present application, which “is advantageous in that it improves production yield of ethylene and propylene, compared with the conventional steam cracking, and reduce[s] reaction temperature.” *Specification*, page 11, line 22, to page 12, line 3. This unexpected and superior result cannot be achieved by “a matter of design choice to the engineer practicing in this field.” Accordingly, claim 1 is allowable over *Egan*. Claims 2, 4, and 5, 7, which depends from claim 1, are also allowable for at least the same reasons as claim 1.

Similarly, claim 8 recites, “mixing a zeolite with water to obtain a slurry solution, wherein the zeolite has a structure of MFI, MEL, TPN, MTT or FER.” *Egan* fails to teach or suggest at least this element of claim 8. Accordingly, claim 8 is allowable over *Egan*. Claims 10, 11, 13, and 14, which depends from claim 8, are also allowable for at least the same reasons as claim 8.

Applicants, therefore, respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 1-14.

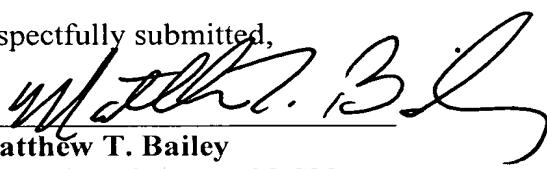
The application is in condition for allowance and early, favorable action is respectfully solicited. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

Dated: August 3, 2009

Respectfully submitted,

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